

What is claimed is:

1. A method of tracking a user in a communication network supporting a broadcast-multicast service, comprising:

classifying groups of users into tracking areas at the network; and  
tracking movement of at least one user of the group as it crosses a boundary between two tracking areas in the network.

2. The method of claim 1, wherein the classifying step further includes classifying non-overlapping sectors into broadcast-multicast service tracking areas, each sector including one or more multicast groups of users.

3. The method of claim 1, further comprising:

determining a change in tracking area for the at least one user based on one of an adding criteria and a dropping criteria.

4. The method of claim 3, wherein

each tracking area includes one or more groups of sectors, each sector including one or more multicast groups of users, and

the adding criteria and dropping criteria includes comparing pilot signal strengths of sectors to at least one threshold.

5. The method of claim 1, wherein the tracking step further includes:

tracking the user based on information related to a tracking area change received from the user.

6. The method of claim 5, wherein the received information includes a tracking area registration update message related to a tracking area change of the user to another tracking area.

7. The method of claim 6, wherein the tracking area registration update message is enabled or disabled based on an indicator value received in overhead by the user from a serving sector.

8. The method of claim 1, wherein the tracking step further includes:  
tracking the user based on a registration message received from the user subsequent to a detection of a tracking area change by the user.

9. The method of claim 1, wherein  
non-overlapping tracking areas are defined and consist of one or more sectors in the network, and  
the tracking step further includes:  
the network transmitting information related to the tracking areas of current and neighboring sectors; and  
the user responding to these transmission to enable tracking of the user by the network.

10. The method of claim 5, wherein the information related to tracking areas is included in system overhead transmitted to the one or more sectors.

11. A method by which a user provides a tracking area registration update to a network supporting a broadcast-multicast service, the network serving a plurality of tracking areas, each tracking area containing one or more non-overlapping sectors, comprising:

detecting a change in tracking area as the user crosses from one tracking area to another; and

sending a tracking area registration update message to the network to update the location of the user.

12. The method of claim 11, wherein detecting a change in tracking area is based on a trigger.

13. The method of claim 12, wherein the trigger is based on expiration of a given time interval to control rate at which registration messages are sent on the uplink.

14. The method of claim 12, wherein the trigger is based on a comparison of pilot signal strengths of one or more sectors of a tracking area to a given threshold.

15. The method of claim 12, wherein the trigger is based on pilot signal strengths of one or more sectors of a tracking area exceeding a given threshold or falling below a given threshold for a given period of time.

16. The method of claim 11, further comprising receiving a system overhead message from a transmitting sector, the overhead message including an indicator enabling or disabling of tracking area registration update messages from users in a given sector.

17. A method of tracking a user in a communication network supporting a broadcast-multicast service, the network serving a plurality of tracking areas, each tracking area containing one or more non-overlapping sectors, each sector having one or more groups of users, comprising:

transmitting an indicator for enabling tracking area updates from users of the sector; and

determining user location of at least one user within one of the tracking areas based on a response from the at least one user to the indicator.

18. The method of claim 17, wherein the determining step includes:

after expiration of a given time interval, the user evaluating pilot strengths of M strongest sectors against a given criteria to determine a change in tracking area, and

the network receiving the response based on a result of the evaluation, the response embodied as a tracking area update registration message from the user.

19. In a network supporting a broadcast-multicast service and serving a plurality of sectors, groups of sectors further classified by the network into a plurality of tracking areas, each sector having one or more groups of users, a method by which a user determines a change in tracking area, comprising:

receiving mapping data that maps a given sector identifier for a neighboring sector to a given tracking area to create associations that are known to each user of a group; and

determining a change in tracking area based on the mapping data.

20. The method of claim 19, further comprising:

determining the mapping data based on one or more of pilot PN offset detection, primary scrambling code detection and explicit signaling from the network.

21. In a network supporting a broadcast-multicast service and serving a plurality of sectors, groups of sectors further classified by the network into a plurality of tracking areas, each sector having one or more groups of users, a method by which a user indicates a tracking area change to the network, comprising:

the network transmitting a list of candidate neighbor sectors to each sector, the list including pilot signal strength data of the sectors;

the user

comparing the pilot signal strengths of the candidate neighbor sectors on the list to determine changes in tracking area from a previous transmission; and

transmitting a registration message indicting a change in tracking area to the network, based on the comparing.

22. The method of claim 21, further comprising

the network assigning indicator bits to neighbor sectors of the list, and, after a given time interval,

the user evaluating candidate neighboring sectors corresponding to the indicator bits.

23. In a network supporting a broadcast-multicast service and serving a plurality of sectors, groups of sectors further classified by the network into a plurality of tracking areas, each sector having one or more groups of users, a method by which a user determines a tracking area, comprising:

classifying neighboring sectors belonging to the same tracking area into an ordered candidate neighbor sector list;

each sector transmitting a bitmap of sector identifiers to indicate whether a tracking area of a current sector is different from the tracking area of a previous sector in the candidate neighbor sector list, so that a user knows each sector identifier;

the user accessing the bitmap to determine if its tracking area matches the tracking area of a sector transmitting the bitmap.

24. The method of claim 23, further comprising

the network assigning indicator bits to represent neighbor sectors of the ordered candidate neighbor list; and

the accessing the bitmap step further comprising the user looking up an indicator bit for a particular sector to determine if the sector's tracking area matches that of the user.

25. In a network supporting a broadcast-multicast service and serving a plurality of sectors, groups of sectors further classified by the network into a plurality of tracking areas, each sector having one or more groups of users, a method of obtaining registration to track location of a user in a tracking area, comprising:

transmitting an overhead message from each sector to its corresponding groups of users, the overhead message specifying updates from the users regarding a change in tracking area; and

receiving a registration from at least one user that is based on user detection of a change in tracking area membership for the user.